

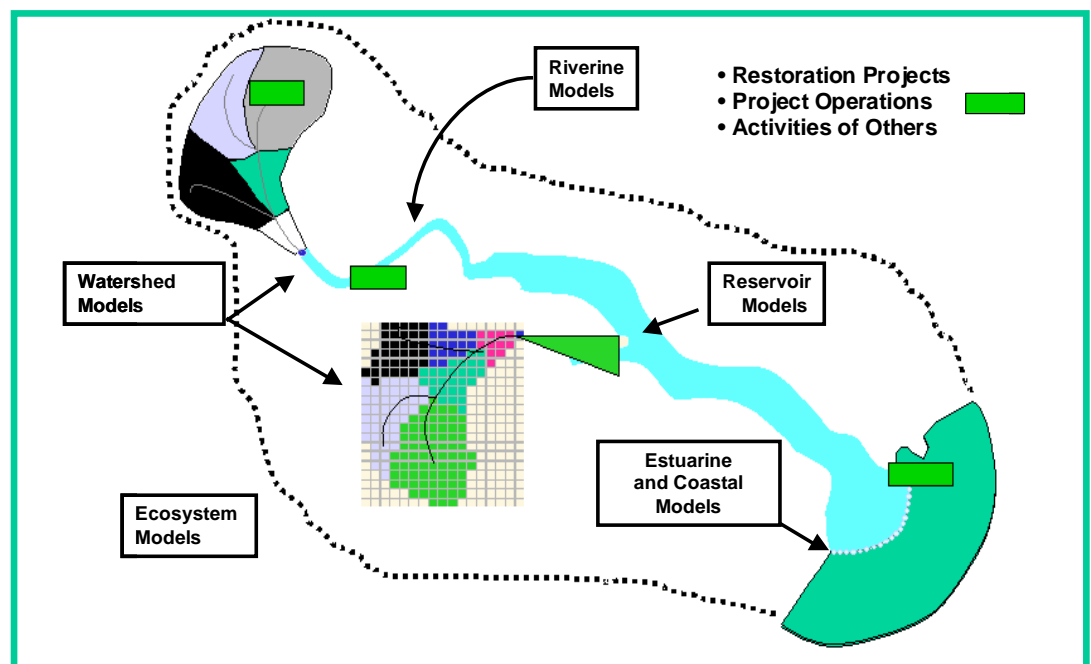


US Army Corps
of Engineers®
Engineer Research and
Development Center

System-Wide Water Resources Program (SWWRP)

Description of Research

The System-Wide Water Resources Program (SWWRP) is a U.S. Army Corps of Engineers research and development initiative designed to assemble and integrate the diverse components of water resources management. Products from this program are designed to help users surpass individual project-level analysis, and apply current and improved technologies for multidisciplinary system-wide assessments. Geospatial technologies, measurement and monitoring methods, and selected numerical and index models are being connected via a framework with user-friendly web access. Tools, methods, and technical documentation are being housed in the [Water Resources Depot](#) for flexible selection of methods used in decision support. Tools and methods can be assembled for watershed, river, reservoir, estuarine, coastal or combined (system-wide) analyses to forecast physical, chemical, and biological responses to water resource management activities. Managing water resource projects in a way that includes a system-wide or watershed-scale perspective is supportive of “[The Corps Strategic Plan for Water Resources](#)” and the Corps’ “[Environmental Operating Principles](#).”



Schematic representation of tools that can be connected for system-wide assessments

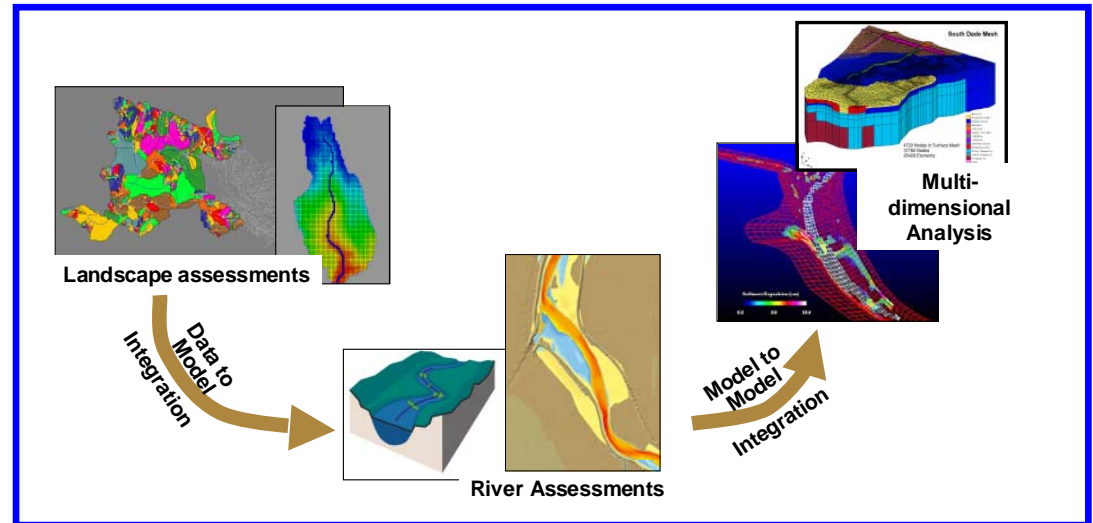
Problem

Traditionally, the Corps has conducted water resources development and subsequent stewardship as well as research and development efforts, based on the needs of specific projects. As a result, useful models and methodologies were developed, but were generally designed for project level applications. While recognizing the local importance of individual projects, there is also a need for expanded knowledge in terms of broader geographic scope and longer time frames. As the Corps has become more committed to system-wide approaches to planning, engineering, operations, and management, an

expanded “toolbox” is required to support defensible information collection and decision-making.

Expected Products

SWWRP’s ultimate goal is to provide to the Corps, its partners, and stakeholders the overall technological framework and analytical tools to balance human development activities with natural system requirements, achieve environmental sustainability, and restore and manage water resources. The major products include software infrastructure, selected system-wide assessment models, and decision support and alternative evaluation systems.



Tiered approach for tool selection in support of decision analysis

Potential Users

USACE Division and District planners, project managers, Corps partners, and others involved in system-wide research.

Projected Benefits

The major benefits to the Nation from SWWRP research and development include:

- Capabilities to assess linkages between watershed activities and operations and maintenance activities.
- Methods for forecasting in the context of system-wide natural resources management.
- Technological interoperability within a collaborative framework (e.g., enterprise architectures).
- Support to Planning, Regulatory, Operations/Maintenance, and Engineering/Construction
- Improved decision-making approaches keyed to watershed-based tradeoff analyses.
- Increased stakeholder collaboration and multidisciplinary technical input during the decision-making process.
- Improved approaches to more effectively address issues of environmental sustainability.

ERDC Program Manager(s)

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Participating ERDC Laboratories

Coastal and Hydraulics Laboratory (CHL); Cold Regions Research and Engineering Laboratory (CRREL); Environmental Laboratory (EL); Geotechnical and Structures Laboratory (GSL); Information Technology Laboratory (ITL).